

Central Venous Catheter (CVC): Removal of Non-Tunneled Central Venous Catheter (CVC)

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This procedure is posted on the BC Renal website:
Health Professionals ► Vascular Access ► Resources

Direct link: www.bcrenalagency.ca/health-professionals/clinical-resources/vascular-access

IMPORTANT INFORMATION

This BC Renal guideline/resource was developed to support equitable, best practice care for patients with chronic kidney disease living in BC. The guideline/resource promotes standardized practices and is intended to assist renal programs in providing care that is reflected in quality patient outcome measurements. Based on the best information available at the time of publication, this guideline/resource relies on evidence and avoids opinion-based statements where possible; refer to www.bcrenalagency.ca for the most recent version.

For information about the use and referencing of BC Renal guidelines/resources, refer to
<http://bit.ly/28SFr4n>.

1.0 Practice Standard

Skill Level (Nursing): Specialized

1. Registered Nurses (RNs) and Licensed Practical Nurses (LPNs) who have completed the required hemodialysis (HD) specialty education and who provide nursing care in a BC In-Centre and / or Community Renal Program; &
2. RNs and LPNs who have received the appropriate training in central venous catheter (CVC) care and maintenance (e.g., RNs working in intensive care or home care settings; RNs and LPNs working in acute care or ambulatory care settings).

This guideline does not apply to patients who are on home hemodialysis.

Need to Know:

1. Nurses may remove *non-tunneled* catheters upon the order of a physician. Physicians remove *tunneled* catheters.
2. Use routine (also known as “standard”) precautions.
 - Perform hand hygiene.
 - Wear gloves (*non-sterile* to remove the dressing and *sterile* for the rest of the procedure), *non-sterile* gown and *non-sterile* mask/face shield during connect procedures. If institution policy is for a clean “no touch” procedure, then may wear *non-sterile* gloves throughout the procedure and change gloves as indicated.
3. Use clean (also known as “medical”) aseptic technique, with additional precautions as follows:
 - Use *sterile* equipment and supplies and a “no touch” technique when handling the catheter and catheter ports and caring for the exit site.
 - Maintain a *sterile* drape under the catheter ports.

- Use an antiseptic wipe and vigorously apply mechanical friction to clean the hubs of the catheter ports (“hub scrubs”). If Tego connectors present, use antiseptic wipe and vigorously apply mechanical friction to clean the connectors.
- Use a separate antiseptic wipe for each clamp/limb/port/Tego connector.
- Allow antiseptic to dry for maximal effect
- Leave hubs “open” (i.e., uncapped and disconnected”) for the shortest time possible.
- Use *sterile* normal saline in a syringe to flush the catheter lumens.

Notes re: antiseptics:

- The Center for Disease Control and Prevention guideline (CDC, 2011) suggests the use of the following antiseptic solutions: >0.5% chlorhexidine with alcohol, 70% alcohol or 10% povidone-iodine. They conclude there is not enough evidence to recommend one antiseptic over the others.
 - The Society for Healthcare Epidemiology of America (SHEA) and the Infectious Diseases Society of America (ISDA) joint guideline (Marschall, 2014) suggest that alcoholic chlorhexidine may have additional residual activity (up to 24 hours) compared with 70% alcohol for this purpose.
4. Air embolus is a potential catastrophic complication during CVC removal.
Ways to reduce the risk:
 - **Never leave catheter ports unattended and open to the air; clamp ports when not being used.**
 - Place the patient supine in as flat a position as the patient can comfortably tolerate (e.g., Semi-Fowler’s position).

2.0 Equipment

- Non-sterile gloves
- Non-sterile gown
- Non-sterile mask(2)/eye protection
- Sterile gloves (2 pair)
- Sterile dressing tray
- Sterile suture scissors
- 4 x 4 sterile gauzes (several)
- Antiseptic wipes (several)
- 2x C&S containers (for exit site and catheter tip swabs), if suspect infection.
- Tape
- Garbage receptacle

3.0 Assessment & Interventions

Preparation:

1. Place the patient supine in as flat a position as the patient can comfortably tolerate (e.g., Semi-Fowler's position).
2. Perform hand hygiene.
3. Gather supplies.
4. Don *non-sterile* gown (staff).
5. Don *non-sterile* mask (staff and patient) and eye protection (staff).
6. Don *non-sterile* gloves.

Remove dressing:

7. Remove exit site dressing and discard dressing.
8. Take C&S around the exit site, if ordered or if suspect a local infection.
9. Remove gloves and perform hand hygiene.
10. Don *sterile* gloves.

Exit site care:

11. Using antiseptic wipe, cleanse the catheter exit site skin in a circular motion (exit-site outward to cover

a diameter of 10 cm). Discard used wipe.

12. Using *sterile* scissors, carefully remove the sutures that anchor the temporary catheter in place (usually two sutures).
13. Place a dry, *sterile* 4x4 gauze, folded into four, over the exit site (to help stop the bleeding when the catheter is removed).
14. Instruct the patient to take a deep breath and to breathe out while the catheter is being removed. \
15. Using a dry, *sterile* 4x4 gauze, grasp the catheter at its exit site from the skin. Remove the catheter, pulling straight out and parallel to the vein while maintaining gentle, constant traction. If resistance is encountered, contact the physician.
16. Apply pressure to the exit site and vessel entry site for a minimum of 10 minutes (longer if bleeding persists). Do not lift the 4x4 gauze to determine if bleeding has stopped (could cause an air embolus).
17. Apply occlusive dressing over venipuncture site.
18. Send catheter tip for C&S if ordered or if a systemic infection is suspected.

4.0 Patient Education & Resources

- Occlusive dressing will be in place for at least 24 hours (usually removed at the next dialysis treatment).
- Notify kidney doctor (nephrologist) or dialysis unit for any of the following:
 - Oozing or drainage from catheter exit site.
 - Noticeable swelling or itching around neck.
 - Shortness of breath.
 - Feverish and any of the above symptoms.

Resource: Care of Your Catheter

www.bcrenalagency.ca/resource-gallery/Documents/Your%20hemodialysis%20catheter.pdf

5.0 Documentation

- Document date, time, procedure, integrity of the catheter, condition of the exit site, any bleeding and patient tolerance of the procedure.
- Document if an exit site swab and/or catheter tip is sent for C&S.
- Document the procedure in Dialysis Access module in PROMIS.

6.0 References

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12. O' Grady et al. (2011). *Guidelines for the prevention of intravascular catheter-related infections*. Centre for Disease Control (US). 51 (RR-10): 1-26. www.cdc.gov/hicpac/BSI/BSI-guidelines-2011.html; Accessed Dec 20, 2016.
13. Registered Nurses Association of Ontario, Care and Maintenance to Reduce VA Complications. (2005). <http://rnao.ca/bpg/guidelines/care-and-maintenance-reduce-vascular-access-complications>. Accessed Dec 20, 2016.

7.0 Developed & Approved by

Developed by:

- BC Vascular Access Educators Group (VAEG)
- Renal Educators Group (REG)

Approved by:

- BCR Hemodialysis Committee (reviewed 2011 version; only minor changes in 2017 version)
- BCR Medical Advisory Committee (reviewed 2011 version; only minor changes in 2017 version)

For information about the use and referencing of BC Renal provincial guidelines/resources, refer to the table of contents.